

What is claimed is:

1 1. A method for mounting an optical subassembly of an
 2 optical reading device to an image sensor subassembly of an
 3 optical reading device, said method comprising the steps of:

4 moving said optical and image sensor subassemblies in
 5 proximity with one another; and

6 soldering said optical and image sensor assemblies
 7 together using a solder material.

1 2. The method of claim 1, further comprising the step of
 2 forming a solderable surface on at least one of said optical
 3 subassemblies or said image sensor subassemblies.

1 3. The method of claim 1, further comprising the step of
 2 forming a solderable surface on at least one of said optical
 3 subassemblies or said image sensor subassemblies, wherein said
 4 forming step includes the step of overmolding non-solderable
 5 material onto solderable material to form said solderable
 6 surface.

1 4. The method of claim 1, further comprising the step of
 2 forming a solderable surface on at least one of said optical
 3 or image sensor subassemblies, wherein said forming step
 4 includes the step of plating a solderable material onto a non-
 5 solderable material.

1 5. The method of claim 1, further comprising the step of
 2 forming a solderable material on at least one of said optical
 3 or image sensor subassemblies, wherein said forming step

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4 includes the step of insert molding solderable material in
5 non-solderable material.

1 6. The method of claim 1, further comprising the step of
2 forming a solderable surface on said optical subassembly,
3 wherein said forming step includes the step of making a frame
4 for said optical subassembly comprising essentially solderable
5 material.

1 7. The method of claim 1, further comprising the step of
2 forming a solderable surface on at least one of said optical
3 subassemblies or said image sensor subassemblies, wherein said
4 forming step includes the step of making said solderable
5 surface in an irregular configuration having an increased
6 surface area per unit three dimensional space relative to that
7 of a smooth surface.

1 8. The method of claim 7, wherein said at least one
2 solderable surface is in the configuration of a pin.

1 9. The method of claim 7, when said at least one
2 solderable surface is in the configuration of a threaded
3 screw.

1 10. The method of claim 7, wherein said at least one
2 solderable surface is in the configuration of a hole.

1 11. The method of claim 1, further comprising the step
2 of forming a first solderable surface on one of said
3 subassemblies and a second solderable surface in said other of
4 said subassemblies, wherein said first solderable surface is

in made in the configuration of a pin, and said second solderable surface is made in the configuration of a hole, wherein said pin has a diameter smaller than said hole to allow positional adjusting of said optical subassembly relative to said image sensor subassembly.

12. The method of Claim 1, further comprising the steps of forming a solderable pin on one of said subassemblies, and making a hole for receiving said pin on the remaining of said subassemblies.

13. A method for mounting an optical subassembly to an image sensor subassembly, said method comprising the steps of:
forming at least one solderable surface on at least one of said optical and image sensor subassemblies,

moving said optical subassembly in proximity with said image sensor subassembly to define an interface delimited by said at least one solderable surface of said optical subassembly or said image sensor subassembly; and

soldering said optical subassembly and said image sensor subassembly together at said interface.

14. The method of claim 13, wherein said forming step includes the step of overmolding non-solderable material onto solderable material.

15. The method of claim 13, wherein said forming step includes the step of plating a solderable material onto non-solderable material.

1 16. The method of claim 13, wherein said forming step
2 includes the step of insert molding solderable material in
3 non-solderable material.

1 17. The method of claim 13, wherein said forming step
2 includes the step of making a frame for said optical
3 subassembly comprising essentially solderable material. .

1 18. The method of claim 13, wherein said forming step
2 includes the step of making said solderable surface in an
3 irregular configuration having an increased surface area per
4 unit three dimensional space relative to that of a smooth
5 surface.

1 19. The method of claim 18, wherein said at least one
2 solderable surface is in the configuration of a pin.

1 20. The method of claim 18 wherein said at least one
2 solderable surface is provided by a threaded screw.

1 21. The method of claim 18 wherein said at least one
2 solderable surface is in the configuration of a hole.

1 22. The method of claim 13, wherein said forming step
2 includes the step of making a first solderable surface in one
3 of said subassemblies and a second solderable surface in said
4 other of said subassemblies, wherein said first solderable
5 surface is in made in the configuration of a pin, and said
6 second solderable surface is made in the configuration of a
7 hole having a diameter larger than said pin.

1 23. The method of Claim 13, when said forming step
2 includes the steps of forming a solderable pin on one of said
3 subassemblies and a hole for receiving said pin on said other
4 of said subassemblies.

1 24. The method of claim 13, wherein said moving step
2 includes the step of aligning optical elements of said optical
3 assembly with imaging elements of said image sensor assembly.

1 25. The method of claim 24, wherein said aligning step
2 includes the steps of:
3 exposing said image sensor assembly to a predetermined
4 test target; and
5 observing indicia representing electrical signals
6 generated by said image sensor.

1 26. An image sensor subassembly comprising:
2 a substantially rigid member;
3 an image sensor chip disposed on said substantially rigid
4 member; and
5 a solderable surface formed on said substantially rigid
6 member.

1 27. The image sensor subassembly of claim 26, wherein
2 said solderable surface is made in an irregular configuration
3 having an increased surface area per unit three dimensional
4 space relative a smooth surface.

1 28. The image sensor subassembly of claim 26, wherein
2 said solderable surface is made in the configuration of a
3 hole.

4 29. The image sensor subassembly of claim 26, wherein
5 said solderable surface is in the configuration of a pin.

1 30. The image sensor subassembly of claim 26, wherein
2 said solderable surface is provided by a threaded screw.

1 31. The image sensor subassembly of claim 26, wherein
2 said at least one solderable surfaces includes four solderable
3 surfaces formed about a periphery of said image sensor.

1 32. An optical subassembly comprising:
2 a substantially rigid member;
3 an optical element disposed on said substantially rigid
4 member; and
5 a solderable surface formed on said substantially rigid
6 member.

1 33. The optical subassembly of claim 32, wherein said
2 solderable surface is made in an irregular configuration
3 having an increased surface area per unit three dimensional
4 space relative to that of a smooth surface.

1 34. The optical subassembly of claim 32, wherein said
2 solderable surface is made in the configuration of a hole.

1 35. The optical subassembly of claim 33, wherein said
2 solderable surface is in the configuration of a pin.

1 36. The optical subassembly of claim 33 wherein said
2 solderable surface is provided by a threaded screw.

1 37. The optical subassembly of claim 33, wherein said at
2 least one solderable surfaces includes four solderable
3 surfaces formed about a periphery of said image sensor.

1 38. An optical reading device comprising:
2 an optical and image sensor assembly including
3 an image sensor subassembly including an image
4 sensor disposed on a substantially rigid member,
5 an optical subassembly engaged with said image
6 sensor subassembly, said optical subassembly including an
7 optical element disposed on a substantially rigid member,
8 at least one solderable surface formed on either of
9 said image sensor or optical subassemblies defining at least
10 one solder receiving interface between said image sensor
11 subassembly and said optical subassembly,
12 solder material for bonding said subassemblies
13 disposed at said at least one solder-receiving interface; and
14 a housing, said optical and image sensor assembly being
15 disposed in said housing.

1 39. The device of claim 38, wherein said housing
2 partially defines a feed path and wherein said device is a
3 document reading device, for reading indicia from documents
4 transported along said feed path.

1 40. The device of claim 38, wherein said housing
2 includes a handle, and wherein said device is a hand held
3 optical reader.

1 44. The optical subassembly of claim 38, wherein said at
2 least one solderable surface is provided by a threaded screw.

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